

a tip having tapered outer walls and being disposed on the distal end of the cannula for inserting into tissue; and

a solid dilating element disposed on the cannula at a location thereon intermediate the distal and proximal ends thereof and having an outer dimension greater than the dimension of the distal end of the cannula for displacing tissue in

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Concl response to movement of the dilating element therethrough to form a surgical cavity therein.

2. The dissector of claim 1 in which the tip is transparent, and comprising:

an endoscope disposed within the cannula, having a distal end positioned near the distal end of the cannula and having a proximal end coupled to the proximal end of the cannula, the distal end of the endoscope being positioned near the tip for providing a field of view through the tip.

3. The dissector of claim 1 in which the dilating element is substantially of oval shape.

4. A tissue dissector comprising:
an elongated cannula, having a proximal end and a distal end;
a tip having tapered outer walls and being disposed on the distal end of the cannula for inserting into tissue;

a dilating element disposed on the cannula at a location thereon intermediate the distal and proximal ends thereof and having an outer dimension greater than the dimension of the distal end of the cannula for displacing tissue to form a surgical cavity therein; and


a locking mechanism, positioned near the distal end of the cannula at a location recessed from the tip disposed on the distal end of the cannula; and the dilating element further comprises a mating lock to mate with the locking mechanism for positioning the dilating element on the cannula at a location thereon recessed from the distal end thereof.

5. The dissector of claim 1 wherein a spacer length is disposed intermediate the tip and the dilating element, the spacer length having an outer dimension less than the outer dimension of the dilating element, for positioning the dilating element within an angle of the tapered outer walls of the tip to permit contact of the outer walls of the tip with a target vessel.

6. (Amended) A tissue dissector comprising:

an elongated cannula having a proximal end and a distal end;

a tip having tapered outer walls and being disposed on the distal end

 of the cannula for inserting into tissue;

a dilating element disposed on the cannula at a location thereon

intermediate the distal and proximal ends thereof and having an outer dimension

greater than the dimension of the distal end of the cannula for displacing tissue to form a surgical cavity therein; and

a locking mechanism positioned near the distal end of the cannula at a location recessed from the tip disposed on the distal end of the cannula, the dilating element comprising a mating lock to mate with the locking mechanism for positioning the dilating element on the cannula at a location thereon recessed from the distal end thereof, said locking mechanism further comprising a length of screw threads positioned on the surface of the cannula, and the mating lock of the dilating element further comprising a threaded bore hole for fixably coupling the dilating element to the length of screw threads.

7. (Amended) A tissue dissector comprising:

an elongated cannula having a proximal end and a distal end;

a tip having tapered outer walls and being disposed on the distal end of the cannula for inserting into tissue;

a dilating element disposed on the cannula at a location thereon intermediate the distal and proximal ends thereof and having an outer dimension greater than the dimension of the distal end of the cannula for displacing tissue to form a surgical cavity therein; and

a locking mechanism positioned near the distal end of the cannula at a location recessed from the tip disposed on the distal end of the cannula, the

dilating element comprising a mating lock to mate with the locking mechanism for positioning the dilating element on the cannula at a location thereon recessed from the distal end thereof, said locking mechanism further comprising at least one protuberance and the mating lock of the dilating element further comprising a mating slot for fixably coupling the dilating element to the protuberance.

8. (Amended) A tissue dissector comprising:

an elongated cannula having a proximal end and a distal end;

a tip having tapered outer walls and being disposed on the distal end of the cannula for inserting into tissue;

a dilating element disposed on the cannula at a location thereon

intermediate the distal and proximal ends thereof and having an outer dimension

greater than the dimension of the distal end of the cannula for displacing tissue to

form a surgical cavity therein; and

a locking mechanism positioned near the distal end of the cannula at a

location recessed from the tip disposed on the distal end of the cannula, the

dilating element comprising a mating lock to mate with the locking mechanism for

positioning the dilating element on the cannula at a location thereon recessed from

the distal end thereof, the dissector operating with selected ones of a population of

dilating elements of differing maximum dimensions for enlarging a surgical cavity

to differing dimensions.

9. A tissue dissector comprising:
an elongated cannula having a proximal end and a distal end;
a tip having tapered outer walls and being disposed on the distal end
of the cannula for inserting into tissue; and

a solid dilating element disposed on the cannula at a location thereon
intermediate the distal and proximal ends thereof and having an outer dimension
greater than the dimension of the distal end of the cannula, the dilating element
being expansively resilient for displacing tissue to form a surgical cavity therein.

10. A tissue dissector comprising:
an elongated cannula, having a proximal end and a distal end;
a tip having tapered outer walls and being disposed on the distal end
of the cannula for inserting into tissue;

an expansively resilient dilating element disposed on the cannula at a
location thereon intermediate the distal and proximal ends thereof and having an
outer dimension greater than the dimension of the distal end of the cannula for
displacing tissue to form a surgical cavity therein; and

a sheath slidably positioned on the cannula, and having a distal end
disposed upon the dilating element in a first position and recessed from the dilating
element in a second position, for reducing the outer dimension of the dilating
element responsive to being in the first position and for allowing the expansion of

the outer dimension of the dilating element responsive to being in the second position.

11. A tissue dissector comprising:
an elongated cannula, having a proximal end and a distal end;
a tip having tapered outer walls and being disposed on the distal end of the cannula for inserting into tissue; and
a dilating element disposed on the cannula at a location thereon intermediate the distal and proximal ends thereof and having an outer dimension greater than the dimension of the distal end of the cannula for displacing tissue to form a surgical cavity therein in which the tip and the dilating element form a single unit and a proximal end of the unit comprises a threaded end and the distal end of the cannula has compatible threads disposed on an inner surface of the distal end of the cannula, for allowing the proximal end of the unit to mate with the distal end of the cannula.

12. A method for enlarging a surgical cavity about a target vessel, using a tissue dissector having a portion thereof of solidly expanded dimension and having a transparent tip with tapered outer walls positioned at the distal end of the tissue dissector, the method comprising:

incising skin;

dissecting within the incision to expose a surface of the target vessel;

positioning a tapered outer wall of the transparent tip of the tissue dissector on the surface of the vessel;

advancing the tissue dissection under endoscopic visualization through the transparent tip; and

simultaneously expanding the surgical cavity in a lateral direction responsive to the portion of the tissue dissector of expanded dimension, as the tissue dissector is advanced.

13. The method of claim 12 comprising:

removing the tissue dissector from the expanded surgical cavity;

increasing the dimension of the portion of the tissue dissector of expanded dimension; and

re-inserting the tissue dissector into the surgical cavity for advancement therein to expand the dimension thereof in response to passage there through of the portion of the tissue dissector of increased dimension.

14. A method of dilating tissue using a surgical device having a solid dilating element disposed near a transparent tapered tip, comprising:

incising skin overlying tissue to be dilated;

inserting the surgical device into the incision; and

advancing the device and concurrently visualizing the tissue and dilating the tissue responsive to the advancement of the device.

15. (Amended) The apparatus of claim 1 wherein the solid dilating element is a shell rigidly attached to the cannula.

16. (Amended) A tissue dissector comprising:
an elongated cannula, having a proximal end and a distal end;
a tip having tapered outer walls and being disposed on the distal end of the cannula for inserting into tissue; and
a dilating element having a fixed size disposed on the cannula at a location thereon intermediate the distal and proximal ends thereof and having an outer dimension greater than the dimension of the distal end of the cannula for displacing tissue in response to movement of the dilating element therethrough to form a surgical cavity therein.

17. The apparatus of claim 16 wherein the dilating element is solid.

18. The apparatus of claim 16 wherein the dilating element comprises expansively resilient foam.

19. (Amended) A tissue dissector comprising:
an elongated cannula, having a proximal end and a distal end;
a tip having tapered outer walls and being disposed on the distal end of the cannula for inserting into tissue; and
a dilating element comprising a rigid shell and having a fixed size disposed on the cannula at a location thereon intermediate the distal and proximal

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cancel ends thereof and having an outer dimension greater than the dimension of the distal end of the cannula for displacing tissue to form a surgical cavity therein.

20. A method for enlarging a surgical cavity about a target vessel, using a tissue dissector having a portion thereof of having a fixed expanded dimension and having a transparent tip with tapered outer walls positioned at the distal end of the tissue dissector, the method comprising:

incising skin;

dissecting within the incision to expose a surface of the target vessel;

positioning a tapered outer wall of the transparent tip of the tissue dissector on the surface of the vessel;

advancing the tissue dissection under endoscopic visualization through the transparent tip; and

simultaneously expanding the surgical cavity in a lateral direction responsive to the portion of the tissue dissector of expanded dimension, as the tissue dissector is advanced.

21. A method of dilating tissue using a surgical device having a dilating element of fixed size disposed near a transparent tapered tip, comprising:

incising skin overlying tissue to be dilated;

inserting the surgical device into the incision; and

advancing the device and concurrently visualizing the tissue and dilating the tissue responsive to the advancement of the device.

22. A handle for an elongated tissue dissection device comprising:
an attachment to the dissection device; and
a singular hand grip securely supported on the attachment in skewed orientation with respect to the dissection device.
23. The handle of claim 22, wherein the hand grip is positioned above the tissue dissection device.
24. The handle of claim 23, in which the hand grip is integrally formed with the attachment.
25. A handle for a dissection device which has an elongated axis lying in a plane, the handle comprising an attachment to the dissection device; and a hand grip supported on the attachment in an orientation out of the plane of the elongated axis.
26. The handle of claim 25, in which the hand grip is positioned above the dissection device.
27. The handle of claim 25, in which the hand grip is integrally formed with the attachment.
28. An apparatus comprising:
an elongated rigid tubular dissection device lying substantially in a plane;

an attachment to the dissection device lying outside the plane; and

a hand grip supported on the attachment in an orientation out of the plane of the dissection device.

29. The apparatus of claim 28, wherein the hand grip is positioned above the dissection device.

30. The apparatus of claim 28, wherein the hand grip is integrally formed with the attachment to the dissection device.

31. The apparatus of claim 28, wherein the attachment overlays a proximal tubular portion of the length of the dissection device.

32. The apparatus of claim 28, in which the tubular dissection device includes a proximal end disposed to provide access to a lumen of the tubular dissection device through the attachment.

33. The apparatus of claim 28, in which the attachment includes a portion thereof oriented substantially normal to the tubular dissection device near a proximal end thereof; and

the hand grip is formed integrally with the attachment in skewed orientation to said portion thereof.